

REWIND: Mindful Travel in the Age of Climate Change

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Greg Dalton: This is Climate One, changing the conversation about energy, economy and the environment. We know that airplane travel is one of the worst things we can do for the climate. But the chance to see the effects of global warming for yourself could be one argument for getting on that flight.

James Sano: I was expecting lots of crevasses and big chunks of ice. But then I suddenly found myself with my skis on a beach. And in the ensuing hundred or so years, the glacier had receded significantly so that there was no ice fall.

Greg Dalton: Things get real when you spend time in the places that are disappearing due to global warming. And maybe travel that opens doors for those hit hardest by climate change is worth the carbon.

Jennifer Palmer: When you think about in the grand context of the people that I'm helping have the experiences that they're becoming ambassadors for these places. They're coming back and they're telling stories ...and they're creating change.

Greg Dalton: Mindful travel. Up next on Climate One.

Greg Dalton: Americans have always had a sense of adventure. But does exploring the world have to mean destroying the earth? Climate One conversations feature oil companies and environmentalists, Republicans and Democrats. I'm Greg Dalton. Summer vacation is here - and many people are hitting the highways and taking to the skies.

James Sano: So aviation is one of the fastest-growing contributors to climate change. And along with that there is this upward trajectory of travelers but in contrast to that there's a decline in vertebrate animal species. Since I was in high school, the number of species has declined by approximately 60%.

Greg Dalton: I'm taking my family and two dozen Climate One members on a small cruise ship around Svalbard, a Norwegian archipelago near the North Pole that is home to the doomsday seed vault. We'll learn about climate change from experts from Yale and MIT and expect to see stunning Arctic beauty. I'm painfully aware of the irony and feel guilty hopping on a plane when we know

what it's doing to the planet. Visiting a place, whether Mount Everest or the Galapagos Islands, creates a personal connection that can be powerful.

Norbu Tenzing: You go to places like Nepal, Tibet or the Himalayas where we have massive problem with global warming. It's important to go over there and see firsthand what the issues are and, you know, to come back and try and do something about it.

Greg Dalton: On today's program, we talk with three veterans of adventure and eco travel who have been doing just that. Jennifer Palmer is Founder of Women for Wildlife and an advocate for Women and Girls in Science. Jim Sano is Vice President for Travel, Tourism and Conservation at the World Wildlife Fund. And Norbu Tenzing is Vice President of the American Himalayan Foundation. His father, Tenzing Norgay, was the Nepali Sherpa who first reached the summit of Mount Everest with Sir Edmund Hillary in 1953.

Jim Sano starts off by recalling his trip across Antarctica in 2000, retracing the route taken by Ernest Shackleton nearly a century before.

James Sano: I had the great fortune to get a permit from the Falkland Islands authority to cross South Georgia Island which is where Ernest Shackleton ended up after his incredible journey on the 23-foot wooden boat from Elephant Island to South Georgia where the expedition first started. And so I co-led this expedition to go on skis and sleds and ropes and everything to retrace his route. So we tried to be very faithful using GPS coordinates and everything. And on the fifth day, we were in a total whiteout and in Shackleton's book and also in John Lansing's book called *Endurance* which I highly recommend, we were expecting a fairly sizable ice fall at the end of the crossing. And I was out in the lead all wrapped up with my sled behind me and others behind me as well who were belaying me, and I was expecting lots of crevasses and big chunks of ice. But then I suddenly found myself with my skis on a beach. And in the ensuing hundred or so years, the glacier had receded significantly so that there was no ice fall. And that had a very powerful impression upon me in terms of how climate change is really affecting the world's glaciers.

Greg Dalton: So you are expecting to ski and yeah, you hit sand, quite a moment. Norbu Tenzing, tell us about a moment where you were never particularly called to mountaineering; some of your siblings were. But there was a moment where you had a virtual ascent where you got to walk in your father's shoes on the top of Everest.

Norbu Tenzing: Well, I feel very lucky that I didn't have to climb Everest like many members of my family and Sherpas make a living. So I thought virtual would be much better.

So this past year, I've been working on a project with some filmmakers to re-create the first ascent of Everest with my father and Ed Hillary along with Peter Hillary, Ed's son and my brother Jamling, who are actually both in South Georgia Island as we speak on a ship. So it's an interesting project to have a very curated and I guess secondhand account about what our fathers passed down to us so that people could actually without having to climb Everest see what it felt like to be the first on the summit, and to re-create that experience; to see the vast expanse of the Tibetan plateau out there looking down at the monasteries in Tibet and into Nepal. So I'm very excited about that and I hope this project will happen sometime this year.

Greg Dalton: So does that mean other people can kinda step into -- to be virtually on the top of Everest?

Norbu Tenzing: Absolutely. Absolutely and the experience is very real. You really think you're on top.

Greg Dalton: Can you breathe?

Norbu Tenzing: Yes, you don't need oxygen.

Greg Dalton: Jen Palmer, you worked among many travel things, you did a gap year program and you projected a film on a screen hung on a sheet hanging over the ocean. Tell us about that.

Jennifer Palmer: Yeah, I was really fortunate to lead a group of students much like all of you are here in the audience today, recent graduates that embarked in a journey about three months' worth of traveling to very remote parts of Indonesia. And one of the communities that we lived with was the Bajau community. And these are ocean-faring people and in fact they distinguish themselves from the land people who live on islands because the Bajau historically had traveled by boats. They have settlements they live in now which are basically stilts that are still built on top of the ocean.

And we spent quite a bit of time there talking to them a lot about climate change and how it's impacting their communities and the livelihood that they've grown to know and love. And one of the biggest things that they're noticing is a huge change in their coral reef habitats and in the abundance of fish that they're able to catch. And so I worked on a film called Chasing Ice which had a lot to do with the glaciers. And so what we did was we actually screened the film for the Bajau people in the middle of the ocean on their settlement on stilts. And so using what limited technology we could, we tied up bed sheets and all the fishermen came and the community came and the children came and they were literally hanging out on boats and watching this film as it was being translated into the local dialect for the people.

And I've screened this film all over the country and probably hundreds and hundreds of times but to see the looks on their faces as they learned about what is a glacier and what's going on around the world and how that's connected to the issues that they're going on and seeing, and the storms are getting worse and their homes are getting damaged and the sea level is rising and they're really challenged right now. And to make that connection and to be able to have a dialogue with that community was very special and heartwarming and heartbreaking at the same time.

Greg Dalton: And what's it like to talk to those people who contributed least and yet they're least prepared to kind of deal with it. They didn't cause this issue but they're feeling it first and worst.

Jennifer Palmer: There were a lot of emotions that came up. There was a little bit of anger, of we didn't do this but we're the ones that are being impacted the most. And I've worked with other communities across the South Pacific that are dealing with that as well, you know, the people throughout Kiribati are becoming climate refugees they're gonna have to leave their home and yet they live in the middle of the Pacific Ocean. This is not something that they greatly contributed with but certainly something that they are very much being impacted by.

Greg Dalton: And that film Chasing Ice you showed in one particular congressional district and tell us how that actually moved that member of Congress from being --

Jennifer Palmer: Yeah, it was a really -- it's an amazing film by the way, it's on Netflix, it's done really well. And the same production company just produced Chasing Coral which is another very powerful story about climate change and the impacts of coral around the world.

But we decided to do a little bit of an experiment with that film where we took it to one congressional district in Ohio in Columbus where Congressman Pat Tiberi was there. And prior to

this event that we did, he was a climate change denier. And we brought the film to the district, we had about 80 different screening events with 80 different partners from all sorts of different backgrounds from farmers to business operators to, you know, schools to faith-based communities. And we just sat and had a discussion, how does climate change impact you personally and the things that you care about. And through those several months of doing events, those people reached out to their congressmen and they really expressed their concern from issues that they cared about. And he actually ended up switching his view on climate. So it's really powerful to show how people can reach out to their local politicians to create change that they believe in. It was very inspiring.

Greg Dalton: Jim Sano, paint the picture for us worldwide in terms of there's a growing middle class and the emerging economies, they're starting to travel. Aviation is a big part of, a growing part of carbon emissions. A lot of industries have started to reduce or slow the growth of their carbon emissions. So tell us how big a piece travel is of the whole global climate picture.

James Sano: Okay. Approximately about 80% of your travel, your carbon footprint associated with travel is associated with transportation. The other 20% is all the activities you do on the trip. The level of tourism now internationally is about 1.1 billion travelers and that is projected to grow to about 1.8, 1.9 billion by 2030.

Per year, per year. So aviation is one of the fastest-growing contributors to climate change and along with that there is this upward trajectory of travelers but in contrast to that there's a decline in vertebrate animal species. Since I was in high school, the number of species has declined by approximately 60%.

And then as you mentioned with coral reefs something like 90% of the coral reefs are threatened in Australia, in general about 75% around the world. And they recently did a study in terms of the economic value of those coral reefs, it's about 29 billion and approximately 10 billion of that is tourism.

Greg Dalton: The Reverend Sally Bingham founded Interfaith Power and Light, a religious response to climate change. Here's how she thinks about the ethical dilemma of air travel.

Rev. Sally Bingham: Clearly, flying in big jets around the world has a negative impact on climate, we all know that. However, I'm working with the religious community and I could justify my travel by informing other people of faith around the world that this is an issue we have to be involved in. And if I weren't allowed to go there or if I were to think that the impact was so horrible that I wouldn't travel there, then the people that I've been talking to over the 20 years about faith, the faith community's obligation to do something about climate change, they never would've heard that message.

Greg Dalton: That's the Reverend Canon Sally Bingham. Jen Palmer, you ever feel guilty on a plane?

Jennifer Palmer: I would say that I've had moments like that for sure. However, much of she expressed, virtually all of my travel has been inspired with the quest of creating change. So whether that's through education or through research or through outreach or through telling the story of the people that are impacted. So although there is a piece of me that sits on a plane and I'm contributing to this, when you think about in the grand context of the people that I'm helping have

the experiences and they're becoming ambassadors for these places, they're coming back and they're telling stories and they're creating videos and they're writing articles and they're having dialogues and they're creating change. So I do feel that I've become an agent of that change and I struggled to think many times that I've traveled that it wasn't involved in a project of some kind in that capacity.

Greg Dalton: So you think a lot before you take a trip. You don't just hop --

Jennifer Palmer: Yeah.

Greg Dalton: Yeah, yeah.

Jennifer Palmer: I really do. And I think a lot about where I'm going and the issues that those places are facing whether it's wildlife or the culture and how can I help, how can I sit there and listen to what they're telling me and how can I bring that home and create solutions.

Greg Dalton: Norbu Tenzing, your homeland is melting partly because of air travel. How do you feel when you get on an airplane?

Norbu Tenzing: Well, you have to get there somehow, right? And I feel like Jen mentioned that when people travel it's vital to travel very responsibly. You go to places like Nepal, Tibet or the Himalayas where we have massive problem with global warming. It's important to go over there and see firsthand what the issues are and, you know, to come back and try and do something about it.

You know, it's important for young people, for example, to go up to the mountains when they hear about climate change to see firsthand on the ground, you know, the potatoes growing the way they used and this is how 7000 people who depend on the mountains live on every year. When we see the glaciers melting over there, when we see the lakes that are about to burst, you know, they have big ramifications for people who live in villages, who have been living there for centuries. And that goes all the way down to half a billion people down through India and to Bangladesh. And so it's really important to travel I think and how you get there, you know, is also important taking into consideration how you get there, but to be responsible to work with people who have a sense of community, people who have a sense of giving back and, you know, which is why I really enjoy what I'm doing and that's what brings me to my part of the world every year.

Greg Dalton: You're listening to Climate One. I'm Greg Dalton, and we're talking about seeing the world without trashing the planet. Coming up, why taking that cruise may not be as bad for the climate as you might think.

James Sano: Let's say you're taking a cruise to Alaska. You put your numbers in the carbon footprint calculator, you'll find that on a large cruise vessel your footprint is half of that as a small let's say 100-passenger vessel.

Greg Dalton: That's up next, when Climate One continues.

Greg Dalton: This is Climate One. I'm Greg Dalton, and we're talking about mindful travel. My guests are James Sano of the World Wildlife Fund, Jennifer Palmer of Women for Wildlife, and Norbu Tenzing of the American Himalayan Foundation.

As summer travel season approaches, many of us wonder what we can do to lighten our eco-

footprint when we travel. Jim Sano has some suggestions.

James Sano: Well, there are few things that are top of mind. One is the obvious is take fewer, longer trips which in this day and age is somewhat challenging to do but certainly over time the length of people's holidays has decreased pretty dramatically.

Greg Dalton: Because we're working so much, right?

James Sano: That's right especially Americans. The other thing is pay attention to your routes. Many people don't know that a great majority of your carbon footprint is associated with takeoffs and landings. So while your airfare may be less if you do a one stop, if you take a direct flight, your footprint would be far less. The other thing is obviously the class of service. If you're in first class or business class, it could be seven or nine times the footprint as if you're in economy. And lastly, the other thing is to consider offsetting your footprint by one of the offset providers.

Greg Dalton: On offsets, Jim Sano, tell us what an offset is and how complicated they are because that's a very murky world.

James Sano: Well, it is murky and very simplistic way it is basically purchasing a credit that would say is associated with forest and forest obviously absorb carbon dioxide and obviously if the forests are burning they release carbon dioxide. And so there are different types of credits. The one that is in Nepal is biogas fuels, for example, alternative fuels. And of course they vary in quality tremendously as you well know. But the ones to look for are what's called the gold standard projects.

Greg Dalton: That's a certification like a seal of approval, a good housekeeping seal of approval you're looking to do some good to offset the bad of the pollution you put in the air by planting trees or capturing gas or other things.

James Sano: Right. Right. And so the offset providers which you purchase in essence these credits. They are of varying quality I would say and all of World Wildlife Fund is employee travel is offset and so our climate team at the international headquarters really pay attention to this and really selects a provider that is based really on a lot of scientific rigor.

Greg Dalton: Why don't airlines make it easier for you when you're clicking on Expedia, Travelocity, Orbitz or anywhere else make it easier for you to offset. They don't want you to think about the bad thing you're doing when you click?

James Sano: Well, I don't know if you've ever noticed but when you book a United Airlines ticket and there is a heart after you book to give you the option to offset. It's through a company called Sustainable Travel International.

And there are other ways, you know, in terms of travel companies. The travel company that WWF partners with called Natural Habitat Adventures they build in the offset into the cost of their trip. So people don't really have to worry about that, but they just made a conscious decision that this is the way we're gonna do it.

Greg Dalton: I was traveling to a climate conference once on Virgin America and they have those, you know, sexy screens you order your sandwich and your drink and there was a carbon offset and so I pushed the carbon offset and the flight attendant came up and said here's your drink, here's your sandwich and looked in the cart and said I just can't find this carbon offset. Well, no that's like this thing to make me feel better for being here on this plane and he said, oh you're the first person that ever ordered that before.

Also, Jim Sano, tell us how cruise ships may not be as dirty as we think they are.

James Sano: Well, the latest generation cruise ships, again, economics drive a lot of this because as you might imagine a large cruise ship burns a lot of fuel. And so there's a very powerful incentive to be efficient and some of the newer generation ships they go to great lengths to reduce their fuel consumption and the engine technology it's even to the hull design, the paint that covers the hull so it has the least amount of friction going through the water. And then the other thing that I found very interesting about cruise ships, you know, some of them can be as large as 6500 passengers and 2500 crew and you might think, boy that's a huge footprint.

But when you actually put your, let's say you're taking a cruise to Alaska and you put your numbers in the carbon footprint calculator, you'll find that on a large cruise vessel your footprint is half of that as a small let's say 100-passenger vessel because there is one propulsion system and that footprint is distributed over 3000 people. So those are, you know, some of the things that aren't always evident. But if you go to these calculators and you start playing around with, well should I drive or fly or should I take a large vessel in terms of my footprint or a smaller vessel.

Greg Dalton: Norbu Tenzing, tell us some fabulous places that you think that if young people or any other people want to see some amazing places in the world what's top of the list for you.

Norbu Tenzing: Well, top of the list always for me is the Nepal up in the Mount Everest area, you know, we have unequivocally the highest and most beautiful mountains in the world.

You know, people would say well, you know, there's all these trekkers over there and there's mountain climbers over there, you know, why should I go. But the mountains are the same, you know, they're beautiful and unlike most parts of the world getting up to the Everest area you can't get up there by car. You can get to 9000 feet by airplane and then you start walking up in the arc. So, you know, for me it's home, but I love that part of the world and I really recommend in anybody's lifetime to absolutely visit Nepal, visit the mountains and, you know, see firsthand how richly endowed, you know, we are with those mountains and to experience the people and that's I think people who go to that part of the world fall in love with the mountains and the people and that's what connects them and that's why people want to keep going back.

Greg Dalton: Tell us how, you know, your dad is a very famous Sherpa, tell us how the Sherpa culture and how Sherpas have attained a certain status and prosperity partly thanks to Sir Hillary and others.

Norbu Tenzing: Yeah, I mean Sir Edmund Hillary soon after he climbed Everest he went on to build some 27 schools and the Sherpa community, you know, in the past 65 years since my father climbed Everest has changed a lot. And, you know, as an indigenous group of people coming from the 15th century to the 20th century in a period of 40 years because of education, we've really been able to make the transition well and we've taken responsibility for our communities up there. We'd taken over the -- very much in control of the economy, although not the Everest economy which is another story for the climbers.

Greg Dalton: If you're just joining us we're talking about travel in the age of climate change. I'm Greg Dalton. My guests are Norbu Tenzing, President of the American Himalayas Foundation; also, Jim Sano, Vice President for Travel, Tourism and Conservation with the World Wildlife Fund; and Jen Palmer, founder of Women for Wildlife. Jen Palmer, let's get your list in terms of your top travel destinations, your favorite places in the world.

Jennifer Palmer: Oh, it's interesting. He mentioned the top of the mountain and I like to go under

the water. So I really have enjoyed my time and feel very, very fortunate to be able to spend time in different areas where there is islands and coral and more of a marine ecosystem and the communities that thrive from a deep connection with that. So I feel very special to have spent time on an expedition about two years crossing the South Pacific. So I think that to me anywhere in the South Pacific you're gonna have an extraordinary experience. I'm a wildlife biologist so I typically get drawn to those places that have incredible animals and I've spent quite a bit of time in the Galapagos Islands and it's an extremely unique place to have an interaction with a wide variety of animals both above and below the waters.

So I would say that's high on my list. But there are places not very far away down in Baja Mexico with extraordinary wildlife and a beautiful culture and it's not as expensive, it's not as far in terms of your imprint of carbon. And I think that there are a lot of places close by that you can get out there and have these adventures as well.

Greg Dalton: Explain to us the impact, the connection between carbon pollution, ocean acidification and coral bleaching because that has tremendous impact on wildlife and also a lot of people subsistence fishermen who rely on those coral reefs at the bottom of the food chain.

Jennifer Palmer: Yeah, it's a really complex issue and I think a lot of people don't really fully grasp the connection that everyone of us has to it. So just as you learn about the forests and how important forests are for our air, ocean is the other 50% of that air that you're breathing through phytoplankton and these incredible ecosystems that provide oxygen for us to breathe and also is a carbon sink. And so just as we've got a lot of issues going on in the forest, we've got a lot of issues going on in the ocean. And as the ocean is trying to absorb that high level of carbon dioxide we're seeing a really high jump in terms of temperature of the ocean and changes in pH and acidity that has dramatic effects on very fragile ecosystems such as coral reefs. And those ecosystems actually act as like a nursery for fisheries. So if you like to eat seafood and your coral is gone, then you're going to have a pretty dramatic shift in the availability of the kinds of food you're gonna be able to eat. And so whether it's the oxygen that's being impacted or the food that we're eating, it has a pretty extreme connection to me, to everybody that we don't always necessarily think of when we first think of the ocean and climate, as well as the wildlife and all of the complexities that they're facing.

And we mentioned plastic pollution and plastic pollution is a very profound issue in the ocean and in fact in a lot of places in the ocean there's 20 times percent more plastic than there is plankton. It acts like a big soup all across the ocean and a lot of people have heard of this sort of garbage patch areas, these island-like floating surfaces of plastic but it's actually like a soup that goes through the water column. And that plastic also has a pretty severe impact on the ecosystems in their totality, and plastic is connected to a lot of the issues we're talking about today.

Greg Dalton: And yet a lot of climate is thought to be a very dark story and yet marine-protected areas are one of the bright spots. Jen Palmer, where there are places that have been set aside where actually ecosystems come back there are good news stories in the ocean.

Jennifer Palmer: There are. There are really good news stories. One of the sites I spend quite a lot of time at as a wildlife biologist is in the Northwestern Hawaiian Islands and it's now been designated a marine national monument and I'm gonna attempt the name, Papahānaumokuākea, and yes I did it.

Greg Dalton: President Bush started that and Obama --

Jennifer Palmer: He did and then Obama expanded it. And so it's a very -- it's a gem left on the

planet where Hawaiian monk seals live which are a highly endangered species of seal. You've got extraordinary populations of shark and shark populations are key for coral reef ecosystems to say vibrant, for that seafood population to be able to thrive. You've got 14 million seabirds that are floating around. This is where all the green sea turtles that you see in Hawaii, this is where they go to lay their eggs and to breed. It's a really, really special place and it's a place most people don't even know exists.

When you look at a globe you have to really look hard to find it but it's a very special spot and I'm excited that it's protected and I hope that it remains protected.

Norbu Tenzing: Now, I wanted to mention the other place that I really enjoyed visiting was the Galapagos where the tourism is run in such a wonderful way and for a Sherpa water is for drinking. The snorkeling was quite difficult but I really enjoyed that one time that I went over there and I had so much more appreciation with all the creatures over there and the way tourism was being managed with all the ships going in and out.

Jennifer Palmer: What did you see when you went snorkeling?

Norbu Tenzing: I saw everything. I can't remember everything that I saw, but a lot of the time I'm just so -- being able to be so close to nature, to be so close to the birds and for them to have no fear of humans was quite special. I've never seen that anywhere.

Greg Dalton: So you're used to breathing at the top of the world and now you're breathing underwater. Jim Sano, one place that some people want to go snorkeling these days is Cuba; it's a hot travel destination. Actually, a fair amount of Cuba has actually been pretty well protected because it hasn't been trampled by tourism. Tell us about that.

James Sano: That is correct that's one of the best protected green ecosystems in the Caribbean. WWF Canada and the Netherlands have been active in Cuba. The U.S. has not been permitted to do so and have been instrumental in setting aside some of these marine-protected areas. You know, one of the more famous ones is called Garden of the Queens or Jardines De La Reina where there are still you can still swim around with 400-pound groupers.

Greg Dalton: Wow. Pretty amazing.

Jennifer Palmer: And a lot of sharks.

James Sano: Right.

Greg Dalton: We're gonna go to our lightning round. Some quick questions and quick answers for our guests today at Climate One. The first ones are true or false. First for Jim Sano, true or false. You have traveled the world but you have never been to Paris or Italy.

James Sano: How did you know that? That's true.

Greg Dalton: Norbu Tenzing, you have seen the Yeti.

Norbu Tenzing: False.

Greg Dalton: This is association. I'm gonna mention a person, place or thing and you just mention the first thing that comes to your mind. Starting with Jen Palmer, Glacier National Park.

Jennifer Palmer: Beautiful.

Greg Dalton: Jim Sano, Bears Ears National Monument.

James Sano: Tragic.

Greg Dalton: Norbu Tenzing, Tibet.

Norbu Tenzing: Another tragedy.

Greg Dalton: Alright. That ends our lightning round. Let's give them a round of applause for getting through that.

Greg Dalton: You're listening to a Climate One conversation about the impact of travel on our climate. I'm Greg Dalton. Coming up, from young members of our audience.

Audience member: We're kinda told that global warming and climate change is an issue, but we're not really able to experience that on an emotional level. What is your input on spreading this idea and getting teens to actually take a step forward? [:12]

Greg Dalton: That's up next, when Climate One continues.

Greg Dalton: This is Climate One. We're talking about globe-trotting in the age of global warming. I'm Greg Dalton, speaking with Norbu Tenzing of the American Himalayan Foundation, James Sano of the World Wildlife Fund, and Jennifer Palmer, founder of Women for Wildlife.

Traveling in poorer and developing areas of the world can be a very enlightening experience. But as Norbu Tenzing reminds us, it's important to maintain both humility and empathy when you're a guest in any country.

Norbu Tenzing: Well, when you're traveling, you're going to another country, you are basically going to somebody else's house. And so you should be very respectful when you go into somebody's house. And travel etiquette is I think very important to be sensitive to local culture, to be aware of what the local religion is and the way you interact with people.

You know, the world today is very different than it was 30 years ago with the internet and with all the communication we have today. So it's a very small world that we live in and so it's increasingly important for us when you travel to the Himalayas, when you travel to Galapagos or the Antarctic, you know, tread lightly, be respectful of local people. And, you know, enjoy these places, enjoy these cultures while they are there and to think about it when you come back and try and do something to give back and make a difference.

Greg Dalton: Tell us what the American Himalayan Foundation is doing to help educate girls and combat trafficking.

Norbu Tenzing: Well, each year some 20,000 young girls trafficked out of Nepal into different parts of the world and trafficking has many different spaces. The HF works in the area of education and prevention and so we have some 10,500 girls in the program right now across 500 schools in Nepal to stop girl trafficking and all it takes is \$100 to put a young girl to school and give her all the support that she needs to make sure that she has a life ahead. And I've been to the villages after the earthquake, you know, I've been to remote parts of Nepal, I've seen firsthand what traffickers do to

people and we know prevention is something that is very important because when somebody's been trafficked already the damage is mostly done.

Greg Dalton: Thank you for that work. If you're just joining us, we're talking about travel in the age of climate change with Norbu Tenzing, President of the American Himalayan Foundation; Jim Sano, Vice President for Travel and Tourism and Conservation of the World Wildlife Fund; and Jen Palmer, Founder of Women for Wildlife. I'm Greg Dalton.

We'll go to the audience questions. Welcome to Climate One.

Male Participant: Hi. My name is Roy. You earlier mentioned about Indonesian culture or some town in Indonesia that was being disrupted from climate change. Can you further go on that, like how are they actually being affected like their coral reefs.

Jennifer Palmer: Sure. Yeah, it's the Bajau people in the area called Sempela which is in Indonesia. Years ago they would live on boats and they would travel and follow the ocean and that was their livelihood. They are now living in settlements so the government has basically enforced them to be able to stay in one space so they're not migrating, they're not living on boats the way that they used to. So they have this home base in the middle of the ocean on very rickety structures which are very susceptible to storms. So as the storm levels increase, their homes are being damaged quite often. But more so, the pressing issue is their access to seafood and to fish as their livelihood. That is their only primary economic resource that they have. So now as fish populations are on such decline, the fishermen have to go further and further and further out and stay longer and longer and longer just to get less and less fish. And so you've got people that are running out of food and they're running out of resources. And then the coral itself is being greatly impacted by the increased level of temperature. So you're having a lot of coral bleaching and that is just a trickle-down effect into the entire ecosystem.

And so you've got people that are deeply connected to the ocean for their existence and their religion and their livelihoods and therefore their culture is at risk.

Greg Dalton: Let's go to our next question. Welcome.

Female Participant: So I personally think that travel is a good way to learn about cultures and protecting environment as well and I'm just curious how like what's your opinions on the idea of novel ecosystem. Like basically just letting the ecosystem be itself, like being modified by humans and not putting efforts to kind of be adverse to change. You know, like because right now we just kind of have so many stuff that's going on in the world right now. And many people arguing that the political and economic cost is not worth the change.

Greg Dalton: Jim Sano, the idea that let it happen.

James Sano: Basically, let nature take its course, right?

Greg Dalton: Or human intervention in nature. You could stop nature at any point in time and that would be artificial, it's always changing.

James Sano: Right. Well obviously, then you get to the question of, if you let nature take its course how will that impact people, sustainable livelihoods and the economy?

We're already seeing, you know, for example, in last Sunday's New York Times there was an article about Easter Island and the rising sea levels and how that's threatening some of the sites that travelers visit. Well, a hundred thousand people go to Easter Island every year and it's a \$70 million

economic benefit to the islands. And so if you take that impact of climate change, coral reefs is the other big one, you go to the Himalaya where that whole watershed 2 billion people rely upon that watershed for their daily water needs. You look at Syria; I mean a lot of scholars basically attribute the conflict to climate change.

Greg Dalton: The drought caused some people to move. The CIA concluded that. There was a drought amplification in Syria.

James Sano: And I highly recommend the movie called if you haven't seen it all really is, The Burden. And it's a documentary that is talking to the U.S. military heads of command and how climate change is really the threat of it in terms of all global conflict. A very enlightening movie in terms of the ramifications if you don't do anything.

Greg Dalton: Let's go to our next question. Welcome to Climate One.

Participant: You mentioned plastics in the oceans. I was wondering if you could elaborate on the effect on the ecosystem and communities that lived off of the ecosystem.

Jennifer Palmer: Absolutely. There have been a lot of different research projects looking at all of the gyres around the ocean. So gyres are areas where the currents are sort of circulating and so the plastics that are coming from land end up in the ocean and it's broken down into smaller particles. It's not just big chunks of plastic floating on the surface, it's tiny little particles that go all the way down into the water column. And so everything that you can think of in the ocean that might eat plankton or small fish or some small crustacean, what they're eating now is plastic. And that's working its way up into the food chain including into the food that we are eating as humans. We're seeing a lot of plastic not just inside the stomachs of different things that we're eating but in the tissues as well.

So it's very concerning and if you are someone who consumes seafood you should be very aware and keep up with the research and the data on that. But in terms of the connection of the wildlife, you've got seabirds that go far offshore like the albatross that scoop up what they think is going to be fish or some kind of crab off the surface of the ocean, and then they fly all the way back to these really remote islands and seabirds actually regurgitate their food into their little chick that's kind of still trying to grow up. Instead of giving that chick fish it's giving it a lot of plastic. And so you're seeing especially now in albatross where you've got massive die-offs of an albatross population that lives in the middle of nowhere, and you look at the stomach contents and it's full of tops to plastic bottles and little lighters and toothbrushes and wrappers and, I mean, you can literally look inside the stomach of an animal that's never left its nest and see the impact of something that's happening thousands of miles away.

And so it's a very concerning and in connection to travel and tourism like Jim mentioned, you've got places like Bali which are gorgeous, Bali is an amazing destination and part of Indonesia. It is covered in plastic and now it's greatly impacting the reef ecosystems. So you go for a snorkel in a place like Bali and you think you're going to see this pristine spot and there are literally plastic bags floating in the water as you go by. So these are issues that are impacting the economy as well as the communities that that live there, that thrive off of that resource.

Greg Dalton: Let's go to our next question. Welcome to Climate One.

Male Participant: Yeah, I think a lot of the solutions that are proposed also like I think tend to sort of like assume like a certain level of like, you know, like financial sort of means sort of or be sort of like, you know, outside of the reach of some people. So, yeah, one thing I was kind of wondering

about was how, you know, the kind of issue could be brought into like solutions could be sort of offered to like a broader range of people of different like socioeconomic sort of circumstances both in places like the U.S. and also like, you know, in nations around the world where like, you know, there's problems with like food insecurity or just conflict or something like that.

How, you know, climate change can sort of like move on beyond those barriers and people can be made like open to, you know, to be made aware of what they can actually do.

James Sano: Well, there's no doubt that in terms of transferring technology, for example, when I first went to Nepal in 1980 the population was somewhere in the vicinity of about 13 million. Now it's about 28 million. And the primary source of heat and energy for cooking and so forth was wood. But over time, people had to travel further and further away to get wood and so very slowly this technology has become a lot more affordable. And so even in some of the remote areas you see these many hydro plants, for example, or biogas stove is another example or solar technology where the benefits from the wealthier countries are being transferred to developing countries and that is in turn improving their livelihoods.

Greg Dalton: Let's go to our next question. Welcome to Climate One.

Male Participant: Alright. So there are a lot of young teens and many generations that are currently rising each year and we're kinda told that global warming and climate change is an issue, but we're not really able to experience that on an emotional level. So how do you think that teens can kinda get this message that climate change is an issue? And what is your input on like spreading this idea in getting teens to actually take a step forward.

Jennifer Palmer: Yeah, I would love to speak on this. I work with teens all across the world and it's what gives me hope and inspiration and I think part of what draws me to work so closely with teens is that you are so innovative and creative and come up with out-of-the-box ways of getting people involved and engaged. And we're seeing this obviously not just in our country but all around the world. I would say use your voice in the way that resonates with you. If you're an artist, if you are a social media nut, if you are a musician, if you're really good at bringing people together, like really express your voice and do it in a way that's going to have an impact. You've got all the tools at your fingertips. You're already looking at a screen that's connected to the world all day long. You are at a place in history that is unparalleled to create massive change around the world.

And so I would say find an issue that you are really passionate about or that is really pulling your heartstrings and find a mentor, find an organization if you really aren't sure where to start. There are people there that want to help and that need your help. And your voice matters more on this issue than I think almost any issue that's happening right now because it will be your generation that is trying to come up with bigger solutions to address the massive amount of impact that this is going to have not just today but especially tomorrow.

James Sano: And I would add, tell stories. Telling stories is a really powerful way to share what you're experiencing around the world and that could be halfway around the world and connecting with a teenager or a young adult here. It's amazing what you can do with a one-minute clip and be that whatever social media platform that you're involved. And they don't have to be professional or anything but it's just making it real.

Greg Dalton: Let's go to our next question. Welcome to Climate One.

Participant: Hi. Do you mind elaborating a little bit about how coral is being affected by basic things that we're doing to the environment, such as fishing. How is that affecting environments that

have been there for hundreds of years and how is it getting destroyed in a matter of actually days or weeks?

Jennifer Palmer: Sure. Yeah, in relation to coral and climate change, the biggest impact right now really does have to do with the temperature of the ocean. The coral is an organism that is pretty sensitive, it kind of likes it's sweet spot in terms of the conditions of life just as we do. And if it gets just a little bit too hot or a little bit too cold, they're going to change. And what's happening is the temperature of the ocean is just reaching a level, in some places it's like a bathtub, it's so hot. And it's as if we would get a fever and maybe 1 or 2 or 3 degrees doesn't sound like a lot, but it's the matter of life and death for an organism. And so that's really causing that the bleaching that you hear about coral bleaching it's the actual, the start of it is the algae inside of coral. The coral kind of uses the inside it's called zooxanthellae. It's an algae that provides energy to the coral. It's very sensitive, this whole organism is sensitive. So if the temperature rises too much, the algae can't live anymore. It dies and the coral loses its color because the algae is very vibrant in color. When it loses its color, then you've got that white coral which is really fragile, maybe not dead yet, but it's very, very, very sick.

So if it's very, very sick and then you add overfishing pressures or you add a change in acidity to the water, you add a big storm that goes through, you've got ecosystems like you said that are tens of thousands of years old dead in an instant. And we're seeing that all across the world especially right now across the Great Barrier Reef, you know, that band around the equatorial waters because it's just getting so toasty in our oceans. These organisms just can't survive.

Greg Dalton: Let's end on an upbeat. Jim Sano, what gives you hope?

James Sano: Young people.

Greg Dalton: Jen Palmer.

Jennifer Palmer: Resiliency. Our environment actually is quite strong and resilient if we just let it do what it needs to do and provide the protection it needs.

Greg Dalton: Norbu Tenzing, what gives you hope?

Norbu Tenzing: I think humans are basically compassionate by nature, but I find a lot of hope in young people and especially today to listen to some very intelligent questions, many of which I couldn't answer. I'm glad these two are here.

Greg Dalton: We've been talking about travelling mindfully, with Norbu Tenzing, Vice President of the American Himalayan Foundation, Jennifer Palmer, founder of Women for Wildlife, and James Sano, Vice President for Travel, Tourism and Conservation at the World Wildlife Fund. As you plan your summer travels, are you considering buying carbon offsets? Please share your offset experiences with us on Twitter or Facebook. We will be taking a deep dive into the offsets controversy on a future show and might include your comments.

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Greg Dalton: Kelli Pennington directs our audience engagement. Tyler Reed is our producer. Sara-Katherine Coxon is the strategy and content manager. The audio engineers are Mark Kirchner,

Justin Norton and Arnav Gupta. Anny Celsi and Devon Strolovitch edit the show. Dr. Gloria Duffy is CEO of The Commonwealth Club of California, where the show is based. I'm Greg Dalton. Climate One is presented in association with KQED Public Radio.